



For over 19 years, **Alfa Telecom**. has been committed to implementing impressive projects which considered one of the distinguished works we achieved in the State of Qatar.

Focusing on the importance of contributing to the realization of Qatar Vision 2030 and more development of the country, we have catered with our facilities and services by increasing the administrative and technical competencies to achieve the client's needs and expectations specially in the marine construction. As we continue to innovate, our success is driven by our expert and talented team executing the projects and utilizing the latest technology.

Onwards, we are set to collaborate and be of service towards the future.

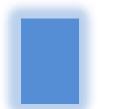
Shk. Mohamed Bin Abdul-Aziz Al-Thani Chairman



T IS OUR TOP PRIORITY TO TREAT EVERY CUSTOMER WITH THE HIGHEST CARE OF DEDICATION AND RESPONSIBILITY.



THROUGH OUR VALUES AND COMMITMENTS, WE AIM TO BUILD STRONG RELATIONSHIPS WITH OUR VALUED CUSTOMERS, TO MAINTAIN THEIR CONFIDENCE IN ALFA TELECOM THROUGH THEIR LOYALTY AND STRONG RECOMMENDATIONS TO OTHER CLIENTS



# MANAGING DIRECTOR'S MESSAGE

Alfa Telecom. seeks in its pursuit of excellence to reflect the spirit of Qatar's success and distinction. We, also are in a race with time to meet the glorious destiny envisioning our goals.

We have fielded a highly qualified, multinational team with solid years of accumulated experience to implement projects that stand out milestones of contributing the progress in the State of Qatar. Our key to success is tireless chase of cutting edge technologies to offer the best to our clients, as we strongly driven with passion for the job we do. The result oriented harmonious teamwork have paid back effort of putting us a step ahead of competition and reshape challenges into opportunities.

We welcome you to share with us together the success and walk with us in building the future.

Ibrahim Al Shahri Managing Director





Adding a team with 28 years of global communications experience covering all aspects of modern telecommunications, including: Planning, design, implementation, engineering and operations & maintenance within mobile telephone & Fixed network systems as well as Satellite antennas system.

Providing a wide range of offerings planned to fit your need — Solutions focused, Quality focused, Delivery focused, We're specializes in the provision of the skills to telecommunications Sector.

With a large resource pool of project managers, telecom engineers and software engineers.

Our mission is based upon building trust with customers and resources, whilst ensuring the highest standards are achieved when delivering our services.

Manhal Kassab Senior Projects Director



### **CORPORATE OVERVIEW:**

Established in 1997, ALFA TELECOM is a highly experienced company with its offices in State of Qatar.

The efficient project management and technical support services at customer's location guarantees the successful execution of each project.

The services provided are variant and adapted to the satisfaction and style of the clients. To support the increasing needs of clients and partners, the company has geared up an assortment of professional analysts and quality assurance engineers.

Depending on the ever-changing requirements, we come up with the essential and up-to-date tools and skills to enhance the clients' confidence in us.

ALFA TELECOM - we believe it as an expression of our creative, innovative and ground- breaking ideas and experience. Learning more about us will please you to find out the inner strengths of the management team that will work for you.

#### **CORPORATE SOLUTIONS:**

The following groups are those where we consider ourselves to be practiced:

Mobile Telecommunications

Environments: 2G, 2.5G, 3G, 4G, 5G – GSM, EDGE, GPRS, TDMA, CDMA, WCDMA, UMTS, LTE.....

Network elements: BSS, RAN, MSC, MMSC, NSS, OSS, MGW, Core Network, Billing, VAS & IN,

Charging Systems, Power systems, Solar systems, IBS (In Building Solution)

- System Design Consultancy Services
- ► Full turnkey Cellular Site Build
- Managed Services Network Sites Operations & Maintenance
- ▶ Supply & Installation Services of Infrastructure Sites Network Elements Products



### **CORPORATE SOLUTIONS:**

- Fixed Telecommunications
  - Environments: PSTN, OSP, VPN, VOIP networks, MAN's, SDH, ATM, GPON, Frame Relay, IP Network elements: Access, Switching, Signalling, Management Systems, Billing, Transport
- ► Next Generation Networks NGN VOIP, IMS, WiMAX, WiFi, IPTV, IP/MPLS, DWDM, Network Transformation, FMC,....
- ▶ Fiber Optic Network : FTTX Fiber end to end solutions deployment
- ▶ Satellite antenna solutions for small vessels to big enterprises in Maritime, on Land & Air.
- Electronic Laboratory Mechanical Workshop

Implementation Services

**Managed Services** 

Infrastructure
Passive Elements
Supply

Resources management & Consultancy



# Managed Services

Managed services consist in the management of the Telecom Industry an external company.

Our premium managed service solutions are designed to optimize the performance and productivity of Telecom Network in order to enable our customers to focus on their core business and reduce their management costs.

Our engineers advise on the best hardware architectures to offer a tailored solution that perfectly suits to the needs of our customers. This solution is, of course, perfectly scalable to meet new requirements



Here are the benefits of our managed services solutions:

- ▶ Technical expertise based on the best technologies available on the market.
- ▶ A comprehensive audit of the needs followed by advices on the best solution to implement.
- ▶ Permanent availability of our team.
- ▶ A pro-active supervision of the entire infrastructure.
- ▶ Regular software and hardware updates.
- Customized and comprehensive reports outlining all the operations on the platform.
- ▶ A transparency on the outsourcing costs.
- ▶ Continuity of service defined by the SLA.



# Implementation Services

Alfa Telecom can provide implementation Services Projects that cover network implementation, planning & optimization, and other specific services

Implementation Services Portfolio can include any of the following:

#### **BTS and Microwave Systems**

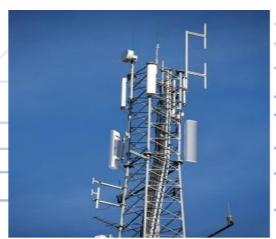
Installs, upgrades, and maintains BTS\Microwave equipment of most major Vendors such Ericsson, NSN, Huawei, ALU, and others. Outdoor & indoor installations, Swap, testing and Integration.

#### **Antenna Systems**

Antenna and line installation is one of the fundamental tasks to be executed in a Mobile network. Alfa Telecom can provide the right resource s to perform these basic functions day in and day out. They are experienced in connector installation, ground kit, weather proofing, bending, entry port installation, jumper connections, connector torque specs, height verification procedures, azimuth verification procedures, and antenna installation requirements

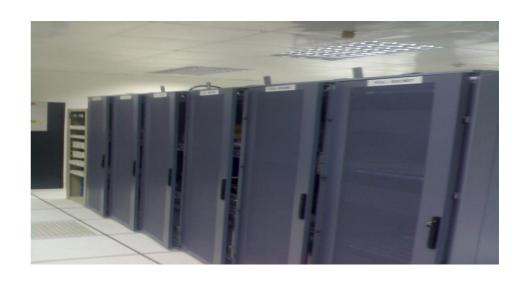






#### **Core Network Service:**

Alfa Telecom can provide complete installation of core elements, commissioning and Integration of all network elements into a fully operational core. This service can provide any or all of the functions listed below. Installation includes the complete installation of the engineered network elements to the applicable vendor standards and will be audited upon completion.



- ▶ MSC-S ,TSC , MGW, TeS, GPRS nodes (SGSN,GGSN), HLR, FNR, EIR, AUC, VLR
- ▶ BSC, TRC, RNC, EVO-BSC, STP/ SCP/ OSS/ CCN
- ▶ IMS nodes:Call Session Control Function (CSCF) -Home Subscription Server (HSS)
- ▶ MPBN, Billing, VAS & IN, Charging Systems (CS) nodes, EMA, EMM, MMS, ...
- ▶ Evolved Packet Core (EPC), UPG, CUDB,
- ▶ GEPON and SUN Products.
- ▶ I.E Solution Engineering

In addition the core network site includes others products such:

- Distribution frames, DDF/ODF/MDF, FLEXFIELD
- Multiplexors CSM and ET4-1, STM-1 / E1 conversion
- Power systems and back-up
- Inverters -Power distribution





# **Power Systems**

**Alfa Telecom** can provide Teams which have extensive experience with DC power system installation, upgrades, and removals. Batteries, UPS systems, chargers and monitors, Generators are all common components of a working system.

Design and sizing of passive equipment on site by site basis (diesel generators, batteries and rectifiers), Engineering performance calculations and software simulations (civil, electrical and mechanical) and Assessing site status and condition, and proposing optimal solutions (replacement, upgrade or refurbishment)

- ▶ DC & AC power systems
- ▶ Electrical circuit installation
- Battery plants
- ▶ Fuel cells
- UPS systems,
- Chargers
- Generator systems
- Hybrid systems
- Solar systems
- Monitoring and control systems
- System upgrades
- Load testing
- ▶ Troubleshooting, testing, maintenance and repair







# Planning & optimization services

**Alfa Telecom** provide complete RF Engineering solutions for Wireless RF Design, Network Optimization, also Transmission planning .

We have qualified engineers to suit our client's needs in developing and deploying new sites in a cost effective approach,

cost economic solutions for improved KPI and ROI.

We provide many different services which include but not limited to:

- Design (RF Design)
- Network Optimization
- ▶ Network Benchmarking & Drive testing
- Drive test Analysis
- ▶ Cell & frequency planning,
- Coverage prediction, site survey
- ▶ Network performance statistics & QoS, KPI's.
- ▶ Transmission planning :
- Traffic dimensioning
- Frequency planning
- Channel planning
- Site Survey, LOS, interference analysis, path profiling,
- link profiling, power budgets, path losses

#### **Approach**

Using the latest tools and technologies in performing the job in order to get the optimum results.



### Field maintenance service

Following the needs by the operators to outsource certain business processes within their operation to reduce OPEX and to focus on their core business of marketing and sales, **Alfa Telecom** offers contract maintenance services in the following disciplines:

- ▶ Microwave system maintenance
- ▶ BTS and Core maintenance
- ▶ Antenna and line inspections and maintenance
- ▶ Equipment audits and verification
- ▶ DC power and battery system inspection and maintenance
- Sweeping and testing
- ▶ Site as-built
- ▶ Antenna down-tilt, azimuth, and optimization services
- ▶ Lighting maintenance
- ▶ HVAC maintenance
- Generator maintenance
- Decommissioning services
- Asset recovery





# Outsourcing Solutions

Alfa Telecom provides Outsourcing Services helping companies to face today's one of the biggest challenges "Managing Human Capitals"

Our outsourcing solutions are a perfect combination of technical expertise and quality of service. They offer performance, flexibility, versatility and peace of mind under all circumstances.



Alfa Telecom is offering its clients Managed Services Projects that cover network implementation, planning & optimization, and other specific services

We provide expert services in:

- ▶ Site development
- Project management and coordination
- System engineering and design
- ▶ System installation, Swap and integration
- ▶ Troubleshooting and maintenance
- ▶ Deployment of Electrical Infrastructure at Telecom Sites
- Operations and Maintenance support for Telecom Infrastructure



# **Resources and Consultancy**

Alfa Telecom provide you resources mainly for telecom industry providing you with best available contract resources

▶ Management	Program Director, Program Manager , KAM, CPM, Account Manager Project Manager, Radio Planning Manager, Operations Manager, Field Service Manager, Commissioning Manager, performance Manager, Core Manager
▶ Planning & Design	RF Planning, RF Design, Network Design, Transmission Planning, Drive Testing, Site Survey, Indoor Planning
<ul><li>Network Rollout &amp; Implementation</li></ul>	Implementation Managers, Rollout Managers, Coordinators, Supervisors & Teams, Installation and Commissioning engineers, Test and Integration engineers, Network Integration, Power system engineers, Quality supervisor, Quality Control supervisor, Site Engineers.
Optimization	Network Optimization, Capacity Planning, Radio Optimization, Core Network Optimization, Performance Management
Network Operations	First and Second Line support, Performance control
► Field Maintenance	Field Service Engineer and Technicians.
► Site Acquisition\ C.W	Site Acquisition Supervisor, Civil Works Manager, QA / QC, Quantity Surveyor, Civil Works Supervisor / Engineer, Site Engineer
► Consultancy	Planning, Optimization, Operations
► Training Courses	Basic, Intermediate and Advanced Technical, Management and Human Skills: Standard and Customized Courses. Instructors are Experts and Consultants with long field and Practical Experience. Quality of Service is Guaranteed.

#### **Partners**



ALFA Telecom is a **ICOM** partner and sole agent for ICOM products in The State of Qatar. ICOM is one of the largest Manufacturer of radio communication equipment for the Amateur Radio, Land Mobile and Private Mobile Radio (PMR), Marine Radio Communication and Navigation sector, as well as for the aviation Radio market space.



**DIAMOND** is one of the leading manufacturers of antenna systems for wireless 2-way radio communication for professional use. Based in Japan they produce a wide range of products which apart from antennas also comprises RX/TX combiners Switches, connectors, cables.



USA based reliable manufacturer of Switching Power Supplies, Custom Base Station Switching Power Supplies, Linear Power Supplies, Custom Base Station Linear Power Supplies, Preset DC Power Supply, 28 VDC Powers Supplies, 28 VDC Switching Power Supplies, DC-DC Converters, DC to AC Power Inverters, Smart charge Battery Chargers.



Yaesu is a Japanese brand is well known among ham radio aficionados and is synonymous with premium quality ham radios. From stationary multi-feature communications equipment to portable devices, YAESU has consistently represented the best in communications equipment to the world's top DX'ers for over half a century.



Kenwood is a leading manufacturer of walkie talkies, NEXEDGE, PMR446 and Ham Radios. They cover all major technologies and protocols: dPMR, DMR etc. KENWOOD's professional Two-way Radio system solution meets the highest demands of today's radio system environment.



Marshall Radio Telemetry designs and supplies premium long-range tracking and recovery equipment to hunters and competitors around the world. Choose Marshall falconry transmitters, dog tracking collars and direction finding receivers and you'll have the most carefully engineered and reliable tracking system available.



#### **Partners**



RFS (Radio Frequency Systems) is a global designer and manufacturer of cable and antenna systems plus active and passive RF conditioning modules, wireless and broadcast infrastructure products and solutions. The products range from Microwave Antennas, Base Station Antennas, Cellflex Foam Cables, Flexwell Elliptical, Waveguide, Filter Preselectors Ferrites & Connectors



**Garmin Ltd.** is an American multinational technology company specializes in GPS technology for an automotive, aviation, marine, outdoor, and sport activities.



Motorola the USA based company specialized in Automotive and Industrial Electronics, Broadband Communications, Embedded Computer Products, GPS Products, Information Security Systems and Products, Internet Products, Military and Defense Systems, Modems, Multi-Communications Devices, Networks and Services and pioneers in cellular technology.



Andrew Corporation origin as a product line of superior Transmission Cable manufacturer. Over time, the company has evolved from its founding as a cable manufacturer to become a global, diversified provider of broadband, enterprise and wireless infrastructure solutions.



USA based manufacture of VHF UHF & HF beam, Yagi, vertical antenna manufacturer



# **Equipment Installation & Maintenance**





















# Equipment Installation & Maintenance















# **Equipment Installation & Maintenance**



















# Equipment /// Installation & Maintenance







- Maintenance and renovation of MW 50 KWt broadcasting transmitter / continental Co., Dubai,
   2000
- Maintenance and renovation of MW 100 KWt broadcasting transmitter / Siemens, Dubai, 2001
- Design and manufacturing of new ATU for Dubai Broadcast 100 KWt station / Alfa Design,
   2001
- Satellite Antenna for Yacht, small vessels and enterprise
- Maintenance and installation of various communication equipment's, including radios, amplifiers, antennas, combiners and duplexers, satellite dishes / Thompson, Harris, GE, Motorola, Comrod, Vertex, Sailor, Kenwood, Yeasoo of different applications, etc, - countrywide, Qatar, from 2002 up to current time

- Upgrade country wide corporative communication system / Governmental use, including 8 sites equipment racks installation in equipment's room, antenna supports, panel antennas installation, orientation and tilting, UPS installation, sites commissioning, Qatar, 2005
- Removing country wide corporative communication system / Governmental use, including
  more than 20 sites, and installation of new generation of communication equipment's, complete task, with full set of installation work in equipment rooms, and tower work, including
  adjustable universal antenna supports manufacturing and its installation with antennas and
  cables; preparing full set of documents for a client about sites, with drawings and connection
  diagrams, antenna positioning and location on tower, geographic location, sites
  commissioning, etc.; Qatar 2006

- Upgrade of system / Governmental use, mentioned above, including software upgrade and amount of sites increased, documentation of sites changing accordingly, sites commissioning, Qatar, 2007-2008
- Upgrade of system, mentioned above, including installation equipment's of new generation /
  Governmental use that represent existing communication protocol, software upgrade and
  amount of sites increased, with some sites moved on new location, sites commissioning etc.
  Qatar, 2009-2011
- Complete upgrade of existing communication system / Governmental use that included removing equipment's from sites and its changing for a new generation racks, one more core site and new sites installation, AVL equipment and software installation, software upgrade (on sites and over air), documentation changing, sites commissioning etc., countrywide, Qatar, 2014-2016

- Installation of RF environment monitoring system / Governmental use for corporative client, with full set of installation work in equipment room, antenna supports manufacturing, antenna installation Qatar 2009
- Upgrade of RF environment monitoring system for corporative client / Governmental use, including new sites installation work in equipment room, antenna supports manufacturing, antenna installation, countrywide, Qatar 2019
- Complete upgrade of existing communication system / Governmental use that included new sites installation, new simulcast sites, increasing number of channels of existing sites, new AVL equipment's, documentation adjustments etc, countrywide, Qatar 2020-2021
- Dismantling 4 towers and related antennas / ancillaries in Rayyan, 157m 64m 45m 33m
   Communication system include MW links, point to point P2P access equipment's, E1 connections & Ethernet.



# PRODUCTS

# DR-138 HE FM ///

#### **Mobile Transceiver**

#### **Standard Accessories**

- MICROFONE (EMS-74)
- DC CABLE (ADUA38)
- BRACKET & HARDWARE PACK (ADFM78)









#### **Optional Accessories**

• PC CONNECTION CABLE (ERW-7)



# DR-638HE VHF/UHF FM

#### **Dualband Handheld Transceiver**

#### **Specifications**

The new DR-638 dual-band transceiver from Alinco makes a sharp attractive addition to any operating environment. Starting with full duplex capability, cross-band repeat and a remotely mountable control head, the DR-638 is a solid performer for base or mobile operation. With a highly visible large, 6-character alphanumeric display features variable display colors for custom illumination. Ignition key on/off feature, theft alarm, extended receive capabilities, with variety of signaling and scan modes







#### **Standard Accessories**

- ADFM78: Mobile bracket
- ADUA38 : DC Power Cable (15A Fuse)
- EMS-77 : Back-Lit microphone with key pad

- EDS-28 Front Separation kit
- ERW-12 PC Connection
- EDS-29 Cable Cloning

## DR-735T/E

### Mobile/Base VHF+UHF

### **Full-Duplex Transceiver**

#### **Specifications**

Alinco DR-735T VHF/UHF Transceivers feature eight full color LED backlights that enable you to customize your display colors! DR-735s let you assign different colors for different functions. These "beautifully simple" radios have fully independent VHF/UHF keys and dials to deliver true dual-band operation. The removable front panel can be remotely mounted or inverted for optimal speaker placement.



#### **Standard Accessories**

- Microphone (T-model EMS-79/ E-model EMS-78 are factory-standards)
- DC cable
- Bracket & Hardware pack

- EJ-47U digital modulation unit
- EDS-30 Front-control unit separation kit (frontpanel bracket, 5m cable and a hardware pack)
- EDS-8 Microphone plug conversion cable









# DR-B185HT/HE/// 144MHz FM Mobile Transceiver

**Mobile Transceiver** 

#### **Specifications**

Alinco DR-B185HT 85 watt 2 meter transceivers are their highest power 144 MHz VHF mobile. DR-B185HT transceivers deliver high-power and superior performance without compromise. They compare very favorably to other maker's models that have less power and sell at much higher prices. Their user-friendly configuration and easily-programmable features make DR-B185HT 2 meter rigs an ideal choice for ham operations on the bench, in the car, RV, EMCOMM, boat or anywhere high power is desirable.





### **Optional Accessories**

DR-B185 Programming Software and USB-29A Cable

# DR-MX15 VHF

#### **Marine Transceiver**

#### **Specifications**

Ultra-compact and simple to operate fixed mount VHF marine radio

- DC cable (ADUA98)
- Mounting bracket & Fixing hardware
- Microphone hanger



# DJ-500T/E /// 144MHz/430MHz FM

#### **Dualband 5W Handheld Transceiver**

#### **Specifications**

Full of advanced features, the DJ-500 offers land mobile-grade operation and powerful 5W output. CTCSS, DTMF, DCS and 5-tones are standard, along with a variety of tone bursts for repeater access or selective calling. Convenience features include direct frequency input, alphanumeric channel labels and 200 memory channels that can each store operating parameters.

#### **Standard Accessories**

- EA-228 Whip antenna
- EBP-87 Li-ion 7.4V 1500mAh battery pack
- EDC-190E (220V Linear), EDC-191E (220V / E-models) or EDC-191T (120V / T-models) AC adapter
- EBC-34 Belt clip and a strap

- Mobile DC charging cable (EDC-198)
- Mobile DC cable (EDH-40)
- Earphone Microphone (EME-56A)
- Speaker Microphone (EMS-76)
- Li-ion Battery Pack DC 7.4V 1700mAh (EBP-88) Belt clip not included.









# DJ-VX50HE VHF/UHF FM

#### **Dualband Handheld Transceiver**

#### **Specifications**

The DJ-VX50 offers professional grade operation and powerful 5W (VHF) / 4W (UHF) output. In a compact IP67 dust/water proof body, CTCSS, DTMF, DCS and standard, along with a variety of tone bursts for repeater access or selective calling.

#### **Standard Accessories**

- EA-253 SMA-p Whip antenna
- EBP-101 Li-ion 7.4V 1800mAh Battery Pack
- EDC-219 Rapid Charger Stand
- EDC-221 (E:220V) AC Adaptor
- EBC-51 Belt Clip

- EME-56A Earphone Microphone
- EMS-76 Speaker Microphone



### **A120 VHF**

#### **Air Band Transceiver**

#### **Specifications**

Icom's A120 air band mobile introduces two new features: Active Noise Cancelling (ANC) and Bluetooth® capabilities. The newly added built-in ANC reduces background noise and is effective in extremely noisy airport environments. The automatic noise limiter (ANL) reduces pulse-type noise such as engine ignition.

#### **Standard Accessories**

- Hand microphone, HM-216
- DC power cable
- Microphone hanger kit
- Mounting bracket kit
- **Fuses**

- OPC-440 Mic Extension cable
- SP-35 5W speaker with 3.5mm speaker jack & 2m cable
- VS-3 Bluetooth earpiece microphone w/PTT
- SM-26 Desktop microphone





# IC- 2730E VHF/UHF

#### **Dual Band Transceiver**

#### **Specifications**

The IC-2730E provides VHF/VHF, UHF/UHF simultaneous receive capability as well as VHF/UHF receive. Main dials, volume, squelch knobs and primal buttons are symmetrically laid out for each band. The display size of the IC-2730E is 1.5 times larger than its predecessor, the IC-2725E. Frequency display and channel names are larger, and the white backlit provides higher contrast.

#### **Standard Accessories**

- Hand microphone, HM-207
- Controller cable
- Microphone hanger
- DC power cable
- Spare fuses











- MBA-4 For attaching the controller to the main unit.
- MBF-1 Suction cup mounting base. MBA-5 is required.
- SP-30 4 inch (102.5mm) diameter speaker
- OPC-478UC: USB type cable for use with the CS-2730



## IC-7300 FH/50MHz

#### **Transceiver**

#### **Specifications**

New technology is changing the way receivers are being designed and the IC-7300 is an industry first as an RF, Direct Sampling System is being used in an entry level HF radio. The ability to digitize RF before various receiver stages reduces the inherent noise that is generated in the different IF stages of a radio. We feel the performance of the '7300 will far exceed your expectations for a radio considered entry level.

#### **Standard Accessories**

- HM-219 Hand microphone,
- DC power cable
- Fuses & Plugs

- AH-4 HF+50MHz AUTOMATIC ANTENNA TUNER
- AH-740 AUTOMATIC TUNING ANTENNA
- AH-710 FOLDED DIPOLE ANTENNA
- PS-126 DC POWER SUPPLY
- IC-PW1 HF+50MHz 1kW HF LINEAR AMPLIFIER
- RC-28 USB REMOTE ENCODER
- OPC-420 OPC-2321 CONTROL CABLE
- OPC-599 CABLE ADAPTER Converter











#### IC-M200 VHF

#### **Marine Transceiver**

#### **Specifications**

The M200 gives you the same lcom performance and reliability boaters expect in a fixed mount but at a great value. This small compact unit includes a large easy to read LCD plus is IPX7 rated and comes with the AquaQuake draining function for optimal audio. This is a perfect radio for boats that need a basic radio or boats with limited space.

#### **Standard Accessories**

- Hand microphone, HM-164B
- DC power cable
- Mounting bracket kit

- MB-92 Dust Cover
- MB-69 Flush Mount Kit
- HM-164B Microphone











#### IC- M88 VHF

#### **Marine Transceiver**

#### **Specifications**

The M88 is compact and built tough to withstand hazardous and inhospitable environments at sea and on land. The JIS7 waterproof rating protects the radio, even if dropped in the water. Yacht customers prefer the M88 because of the 22 programmable land mobile channels, the optional swivel belt clip and the headset options. A push of a button changes the operating band between marine and land mobile channels.

#### **Standard Accessories**

- **Battery pack**
- Battery charger
- AC adapter\*
- Swivel belt clip
- Antenna, FA-S59V
- Hand strap

- **BP-226 Battery Case**
- BP-227/BP-227FM Battery Pack
- BC-119N Desktop Charger
- BC-121N Multi Charger













## IC-M37E **Buoyant**

#### Marine VHF Handheld

#### **Specifications**

The IC-M37E is Icom's latest buoyant marine VHF handheld radio and comes with 6 watts of output power for extended communications range. This radio has a great simple design that is comfortable to hold, simple to operate and easy to read. A perfect marine VHF radio for leisure and commercial users alike.

#### **Standard Accessories**

- BP-296 battery pack
- BC-235 desktop charger BC-217SE AC adapter\*
- FA-SC59V antenna
- MB-133 belt clip
- Hand strap

- BC-235 Desktop charger for IC-M37E.
- BC-238 The BC-238 is a 12V six-slot multi-charger
- BP-296 Li-ion 3.6 V 2350 mAh (ytp.). 2200 mAh (min.)
- BP-297 3 x AAA (LR03) alkaline cells. Output power: 1W.
- FA-SC59V VHF Antenna
- HM-213 IPX7 waterproof speaker microphone









## IC-M85E VHFPBR

#### **Marine Radio**

#### **Specifications**

Designed with a particular emphasis on commercial use the IC-M85E is a high-class waterproof marine handheld radio that meets both marine and simple Private Business Radio (PBR) applications. Compact and with a robust modern construction, the IC-M85E contains critical commercial features including built-in voice scrambler ensuring private conversation and emergency features including Man down and lone worker function.

#### **Standard Accessories**

- BP-290 battery pack
- BC-227 rapid charger BC-123S\* AC adapter
- FA-SC58V antenna
- MBB-3 belt clip
- Hand strap

- BC-214 Multi Charger
- AD118 14-pin multi-connector to 6-pin Hirose connector







#### IC-M87 VHF

#### **Marine Transceiver**

#### **Specifications**

The IC-M87 ATEX and designated options are certified to the ATEX Directive. It is suitable for use in hazardous areas where flammable gasses or liquids are used such as petroleum tankers and bulk cargo carrier

#### **Standard Accessories**

- Battery pack, BP-227AX
- Battery charger, BC-152N
- AC adapter, BC-147SE\*
- Swivel belt clip, MB-86
- Antenna, FA-S59V
- Hand strap

- HM-138 Speaker Microphone
- HM-168 Speaker Microphone
- BC-197 Multi Charger
- **BC-147S AC Adaptor**
- **BC-157S AC Adaptor**









#### IC-V86 VHF FM

#### **Portable Handheld Transceiver**

#### **Specifications**

Icom IC-V86 144 MHz FM Handheld Transceivers give you more audio, more RF power, more coverage and more battery capacity in a compact, MIL-STD portable 2 meter portable. Producing 1500 mW of audio power to an improved chassis design and speaker, the IC-V86 lets you easily hear incoming signals in loud, noisy environments. The IC-V86 transmit coverage is expanded with 7W of RF output power and the new 2250mAh Li-lon battery pack also provides longer operational capabilities.

#### **Standard Accessories**

- BP-298 Battery Pack
- BC-240, Desktop Charger
- BC-242, AC adapter
- MB-124 Belt Clip
- Antenna, BNC Rubber Whip

- HS-94LWP Ear-hook type with a waterproof connector
- VS-4LA For manual PTT operation
- OPC-2004LA For VOX operation
- HM-168LWP Waterproof Speaker Microphone
- HM-166LA Earphone Microphones





# TH-D74E VHF/UHF

#### **Dual Band Handheld with GPS**

#### **Specifications**

This Dual Band Amateur radio is packed with convenient features and the advantage of a digital transceiver with D-STAR, APRS support. Featuring colour transflective TFT display that offers excellent visibility in day or night. Plus, built-in GPS and Bluetooth support, as well as Micro USB and microSD/SDHC this radio is ready to harness the exciting developments in radio communications.

#### **Standard Accessories**

- Antenna, Li-ion battery pack (7.4V/1,800mAh)
- AC Adapter/charger
- Belt clip

- EMC-11W Clip microphone with Earphone and PTT
- SC-57 Soft Leather Case for TH-D74
- PG-3J Filtered cigarette lighter adaptor.
- SMC-34 Speaker Microphone with Programmable Function Keys and Volume Control







## TH-K20A 144 MHz FM

#### **Transceiver**

#### **Specifications**

The TH-K20A is a rugged IP54 tested portable with 5.5 Watts RF out, A Backlit LCD and Keypad, Internal VOX, 200 memories, Weather Alert, Automatic Repeater Offset, CTCSS, DCS, Cross Tone, Narrow Band FM ready. Comes with a 1130 mAH Li-ion battery and a drop-in charger.

#### **Standard Accessories**

- Antenna, Li-ion battery pack (7.4V/1,800mAh)
- AC Adapter/charger
- Belt clip

- KSC-35S Rapid Charger (100 V 240 V)
- KHS-26 Clip Microphone with Earphone
- PG-4Y PC Interface Cable
- SMC-34 Speaker Microphone with Programmable Function Keys and Volume Control







# TM-281E VHF /// Mobile FM

**Transceiver** 

#### **Specifications**

Kenwood's new TM-281E is built to be the perfect travel companion. HIGH RF POWER OUTPUT. Despite its size, the TM-281E provides a high RF power of 65 watts, with a choice of High or Low output. Kenwood introduces the new Mobile FM Transceiver, for commercialization and use in EU countries. High performance, long range mobile radio: high-power, high-quality audio, backed by tough compliance MIL-STD standards that ensure high reliability.



#### **Standard Accessories**

DTMF microphone

- MJ-88 Microphone adapter 8-pin to RJ-45
- PG-3B DC line noise filter
- MC-62 16-Key Microphone FM Mobiles



## TM-D710GE VHF UHF FM

#### Mobile Transceiver with GPS - APRS and EchoLink Functionality

#### **Specifications**

With Kenwood's advanced TM-D710E you can harness today's most exciting developments in radio communications, including EchoLink®, AX.25, and the latest features of APRS®

#### **Standard Accessories**

- Microphone
- DC power cable
- Cable with a 2.5
- Microphone hanger
- Mounting bracket

- SP-50B External Speaker
- MJ-88 Microphone Plug Adapter
- PG-5A Data Cable







#### **TM-V71E**

#### **Dual Band Transceiver**

#### **Specifications**

The Kenwood TM-V71E is the NEW 2m/70cm Dual Band Transceiver from Kenwood Electronics, which comes with an impressive 50W output on both VHF and UHF bands and dual receive functionality. The Kenwood TM-V71E is one of the first mobile radio's to introduce EchoLink integration within the radio, selecting memories and terminal operation.

#### **Standard Accessories**

- Microphone
- DC power cable

- DFK-3D Remote Head Kit
- PG-5G PC Serial Cable
- PG-5H PC Serial Cable and Soundcard Audio Cable





## **TS-890S** HF50MHz

#### **Transceiver**

#### **Specifications**

The most rewarding results often take place when faced with the harshest and most challenging conditions. HF enthusiasts know this all too well because of their love of HF. KENWOOD has the answer. Achieve results through certainty, not circumstance, delivered with impeccable receiver and audio performance.



#### **Standard Accessories**

DC power cable











- SP-890W Kenwood Base Station Speakers
- HS-5 Deluxe Headphones (1/4 inch plug)
- MC-43S Hand Microphone
- MC-90 DSP-compatible Desk Microphone
- **PS-60 Stable Power Supply**



## FT-4XR **VHF-UHF**

#### **Dual Band FM Handheld Transceiver**

#### **Specifications**

The FT-4XR 2 meter/ 440 MHz HT has three output power levels: 5, 2.5 or 0.5 watts transmitting from 144 to 148 MHz and from 400 to 480 MHz. Receive coverage is 65-108 (FM broadcast band), 136-174 and 400-480 MHz. The FT-4XR is compact and light, yet ruggedly constructed. The speaker provides a full 1 Watt of powerful, clear audio. The supplied 1750mAh Li-ion battery pack is capable of up to 15 hours operation (TX 5 seconds, RX 5 seconds, Standby 90 seconds). The SBH-22 3.5-hour rapid charger is included.

#### **Standard Accessories**

- SBR-28LI 7.4V 1750mAh Li-lon battery
- SBH-22 Rapid Charger
- SAD-20 AC Adapter

- SCU-35 Programming Cable
- SCU-36 Cloning Cable
- SSM-512B VOX Earpiece Microphone
- SSM-16B Compact Speaker Microphone





## **FT-65R VHF-UHF**

#### **Dual Band FM Handheld Transceiver**

#### **Specifications**

Yaesu FT-65R 144/430 MHz Dual-Band HTs are very compact, ruggedly constructed handheld VHF/UHF rigs with three selectable power settings of 5W, 2.5W, or 0.5W That allow each user to select the power they need. Their big front-panel speaker provides a full 1 watt of crisp, clear audio. These units come supplied with a 1950mAh Liion battery pack capable of providing over 9 hours of operation. An optional, higher-capacity 2500mAh Li-ion battery is available for over 11.5 hours of operating time. A 2.5 hour rapid charger comes standard, making the transceiver ready to operate at any time.

#### **Standard Accessories**

- SBR-25LI 7.4V 1950mAh Li-lon battery
- SBH-22 Rapid Charger
- SAD-20B/C/U AC Adapter

- SCU-35 Programming Cable
- SCU-36 Cloning Cable
- SSM-512B VOX Earpiece Microphone









## FT-300D

#### 50W C4FM/FM 144/430MHz

#### **Dual Band Digital Mobile Transceiver**

#### **Specifications**

The new FTM-300DR provides stable and reliable 50W RF power output. As in recent YAESU mobile transceivers, the FTM-300DR is also equipped with a heavy-duty heat sink that includes our exclusive FACC (Funnel Air-Convection Conductor — Wind Tunnel). Real Dual Band Operation (V+V, U+U, V+U, U+V) is available with two independent receivers, and the FTM-300DR supports simultaneous C4FM digital monitoring for both the A and B bands.

#### **Standard Accessories**

- DTMF Microphone SSM-85D
- Radio unit Mounting Bracket
- Control Cable for the operation with mounting front panel
- DC Power Cable

- MLS-100 Mobile Speaker with Mounting Bracket
- CT-166 Cloning Cable for FTM-400DR
- MMB-98 Vacuum Cup Face Panel Mount For FTM-400DR & FTM-350 Series







# FT-2980R /// 80 Watt Heavy-Duty

144 MHz FM Transceiver

#### **Specifications**

The improved FT-2980 now with 80 Watts of High-power output! No Cooling Fan Needed, a huge, easy-to-read display, and one-touch WIRES™ Internet Linking Access capability are yours with the rugged new FT-2980R!

#### **Standard Accessories**

- Microphone MH-48A6JA
- Mobile Mounting Bracket MMB-83
- DC Power Cord w/Fuse

- MLS-100 External Speaker (12-Watt Peak)
- FP-1023 Power Supply (23A)









## 

#### **Dual Band Transceiver**

#### **Specifications**

The FTM-400DR is the first mobile introduced to be a fully compatible radio partner for use on the YAESU System Fusion Dual Mode system. Compared to other digital modulation schemes within FDMA, C4FM has excellent communication quality (BER: Bit Error Rate characteristics). C4FM is the standard method for professional communication devices in FDMA, and is therefore considered to be the main stream digital communication mode in the future.

#### **Standard Accessories**

- MH-48A6JA DTMF mic
- MMB-36 Mobile Bracket
- DC power cable, mic hanger, and manual

- SCU-20 PC connection cableCT-166 Cloning Cable for FTM-400DR
- MMB-98 Vacuum Cup Face Panel Mount For FTM-400DR & FTM-350 Series







# FTM-3100R /// Analog FM Single Band

2-Meter Transceiver

#### **Specifications**

The new FTM-3100R is a ruggedly built yet compact VHF-FM mobile transceiver, providing high output power of up to 65 Watts to ensure stable long-distance communications. One of the distinguishing features of this exciting new mobile transceiver is the Front Panel Speaker delivering 3 Watts of loud and crystal-clear audio; designed for stress-free and enjoyable communications - even in noisy environments.

#### **Standard Accessories**

- DTMF microphone MH-48A6JA
- Mounting bracket
- Fused DC power lead

- LS-200 External Speaker
- FP-1023 Power Supply (23A)











## 

**Dual-Band Digital Mobile Transceiver** 

#### **Specifications**

Yaesu FTM-7250DR 50W C4FM/FM 144/430MHz Dual-Band Digital Mobile Transceivers incorporate the latest advanced features offered for System Fusion II. You can expect this attractive transceiver to provide reliable communications and long-lasting performance. The FTM-7250DR is built into a heavy-duty heat sink equipped with the Yaesu exclusive FACC (Funnel Air-Convection Conductor - Wind Tunnel). Its front speaker delivers 3W of powerful clear and crisp audio, ensuring consistent communications, even in noisy environments.

#### **Standard Accessories**

- DTMF Microphone MH-48A6JA
- Mobile Mounting Bracket
- DC Power Cable w/Fuse

#### **Optional Accessories**

FTM-7250 Programming Software and USB 29F Cable







#### VX-6R

### 2m22070cm FM Heavy-Duty

#### Tri-Band Ultra-Compact

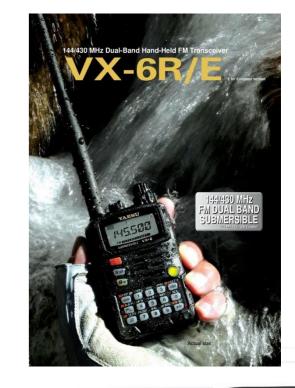
#### **Specifications**

Yaesu VX-6R 2m/220/70cm FM Heavy-Duty Tri-Band Ultra-Compact FM HTs are ideal for rigorous field use! With wide-band reception, rugged and submersible design and simple keyboard commands, these Yaesu VX-6R Transceivers are loaded with features. As a bonus, these USA-version radios transmit on 222-225 MHz with 1.5 watts output! VX-6R Transceivers adopted a one-touch Direct Memory Recall system that operates just like your car stereo does. Just tune to a frequency, press a numerical key for about two seconds to store the frequency!

#### **Standard Accessories**

- FNB-80Ll 7.4 V, 1,400 mAh Rechargeable Lithium-Ion Battery Pack
- NC-72B/C/U\* 5-Hour Battery Charger
- YHA-67 Antenna, Belt Clip, Hand Strap

- VC-24 VOX Headset
- VC-27 Earpiece/Microphone
- CSC-91 Soft Case
- E-DC-5B DC Cable with Cigarette-Lighter Adapter













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